

AN ORNITHOLOGICAL RECONNAISSANCE OF NORTHEASTERN VENEZUELA

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PART I.—ITINERARY.

Leaving New York on February 22nd, 1908, via the Royal Mail Steamer "Trent," Mrs. Beebe and the writer arrived at Trinidad on March 9th.

Never were strangers more hospitably received than were we in the prosperous little capital of the island of Trinidad.* After lengthy negotiations, we secured a sloop of twenty-one

*The success of our trip was insured by the kind interest of many persons both in Trinidad and Venezuela, among whom I may mention Mr. Anduse, Mr. Guiseppi, Señor Toro, Señor Don Escobar, Mr. Alfred Lynch, Mr. B. E. Stoute, and especially Mr. Eugene André and Mr. Ellis Grell.

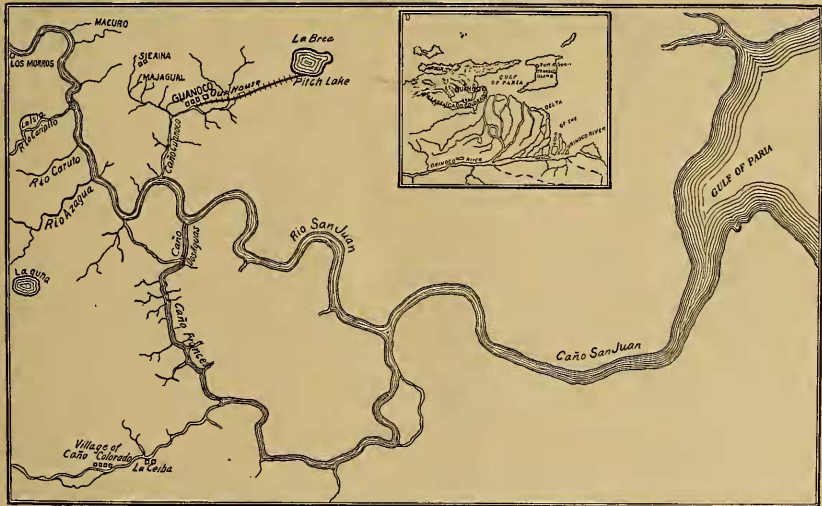


FIG. 20. Map of Our Route in Venezuela.

tons, flying the Venezuelan flag, and under the trusty guidance of Captain Truxillo and the less certain aid of a crew of four men, we left port on the evening of March 24th.

After an exceedingly rough passage of a night and a day across the Gulf of Paria, we glided with the tide up the broad Caño San Juan. We passed the inspection of the Commandante of the Ponton guardship, and proceeded as far as our sloop would float at high tide up the Rio Guarapiche. In the row-boat and in curiaras or dug-outs we then reached our port of entry, Caño Colorado, consisting of a custom house or rather hut, together with a few Indian houses. Having secured our permit to cruise along the coast, we spent our time exploring the mangroves which composed the principal part of this whole region.

At last we disembarked at Guanoco, a small native village, the shipping port for the pitch from La Brea, the great lake of this substance. Here we were hospitably entertained by the Venezuelan receiver by order of the Trinidad gentleman, Mr. Grell, who was financing the works at this time, and here we spent the remainder of our stay in exploring the surrounding country.

At midnight of April 14th, we left Venezuela and returned to Trinidad on the large tug used by the Pitch Lake Company.

The account of the expedition falls naturally into two major divisions, the Mangrove Swamp, and the High Land at La Brea with the surrounding jungle.

The list of birds is compiled from notes made during twenty days' observation in this region, and represents at least the more abundant species found in this circumscribed area of mangrove swamp and jungle edge.

The classification adopted is, in the main, that of Sharpe's "Handlist."

PART II.—THE PURE MANGROVE FOREST.

General Character, Flora and Fauna.

The real coast of the portion of Venezuela which we traversed is shut off from the open gulf by a vast region of deep, blue-black mud, covered with an impenetrable jungle of mangroves and *no other terrestrial plants*. For mile upon mile one paddles through a region of pure culture mangroves—a forest of a single tree. These mangroves are in all stages of bud, flower and fruit, and are most interesting, both as land-makers and land-conservers. Deep channels intersect this area, cutting it up into islands of smaller or larger size, the larger channels being

known as caños, and are really the river deltas of this region, such as the Guarapiche and the San Juan. At high tide one may penetrate deep into the mangrove swamps in canoes, or curiaras as the native dug-outs are called, but low tide empties these of water, leaving exposed the soft ooze. One cannot step upon this, and in all this lower region there is hardly a foot of hard ground. This outermost zone we may designate as that of Pure Mangroves.

Going westward through the Caño San Juan we come to the Rio Guarapiche. This river, from its mouth up to above the village of Caño Colorado, is an excellent epitome of the gradually changing conditions in this region.

At the mouth and for a mile up stream the mangrove reigns supreme. Then orchids and other epiphytes appear, together with a scattering of weak vines and lianas, and now and then the fronded head of a small palm. For a long distance the mangrove holds its own along the banks, its roots bathed by the ebb and flow of the tides. We may call this the Mixed Mangrove region. Finally we observe that the jungle in the background has become wholly terrestrial in character, tall palms and great forest trees draped with a dense mass of lianas and epiphytes, and from the forest fringe the mangrove finally disappears altogether.

At Caño Colorado we find a typical mainland but rather marshy flora, which may be known as the region of Pure Forest.

From the very gulf edge, throughout all this outer zone, monkeys are fairly numerous. We found a species of large black spider monkey (*Ateles*); at least two species of capuchins (*Cebus*); squirrel monkeys (*Chrysothrix*); and the big red howlers (*Mycetes*). The latter seldom range far into the zone of pure mangrove forest, and became more numerous as we approached the dry land jungle.

Spiny rats (*Loucheres*), are found on the mangrove roots, miles from dry land and at least one species of opossum (*Didelphys* or *Chironectes*), also reaches the gulf edge. A small species of squirrel (*Sciurus*), with brilliant rufous under parts extends far into the inner zone of pure mangrove forest, although it is hard to imagine of what its food can consist.

Far from the waters of the gulf we find schools of dolphins (*Delphinus*), playing and feeding in the caños, but in spite of most thorough search we saw no signs, and could learn nothing from the natives, of the occurrence in this region of the manatee.

The characteristic birds of the outer mangrove zone are chiefly aquatic. Gulls, terns, plovers, sandpipers, herons, mus-

covy ducks, scarlet ibises, snake-birds, martins, tree swallows, cream-headed hawks and vultures. The mangrove blossoms attract numbers of insects, and we found such birds as *Todiros-trum maculatum* and *Dacnis bicolor* near the gulf edge, many miles from dry land.

Small and medium sized crocodiles, pale gray in color, were not uncommon in the brackish zone and were the only reptiles observed. Tree-toads were heard here, but no Amphibians were observed or collected.

Fish were abundant, and if they had been the object of our search we could have secured many species.

At the turn of each tide thousands of medium-sized catfish (*Pseudauchenipterus nodosus*), would come alongside the boat and remain motionless for about an hour, all, like the sloop, facing the current. They would bite at anything from a piece of red cloth to a bit of raw yam.

With meat for bait we could catch large catfish, twelve to twenty-four inches in length, yellowish, with a very long spine on the dorsal and pectoral fins. This is known as the crucifix fish, from the striking resemblance of the interior of the dorsal cephalic armor to a human figure on a cross. It is a delicious food fish. The most abundant and interesting fish of the mangrove swamps is the four-eye (*Anableps anableps*).

The mangrove fiddler crab was by far the most abundant form of invertebrate life, swarming over the roots and lower portion of the stems. A small mollusk (*Neritina*), came next in point of numbers. A few biting flies annoyed us now and then during the day, and at night *Anopheles* in swarms hummed outside our netting.

PART III.—GENERAL CHARACTER OF THE MAINLAND FOREST AND THE PITCH LAKE.

As soon as the mangroves give place to a more mixed growth, and at La Brea, far beyond the influence of the tides, the character of the flora and fauna changes radically.

Among the mammals we find sloths, agoutis, ocelots, jaguars and pumas appearing. The agoutis and pumas had half-grown young at the time of our visit, in early April. Tree porcupines and kinkajous were observed, besides peccaries, pacas and deer, and several species of opossums. The four latter animals penetrate far into the swampy and marshy brackish areas, while the others keep altogether to solid ground.



FIG. 22. Nest and Eggs of Great Blue Tinamou.

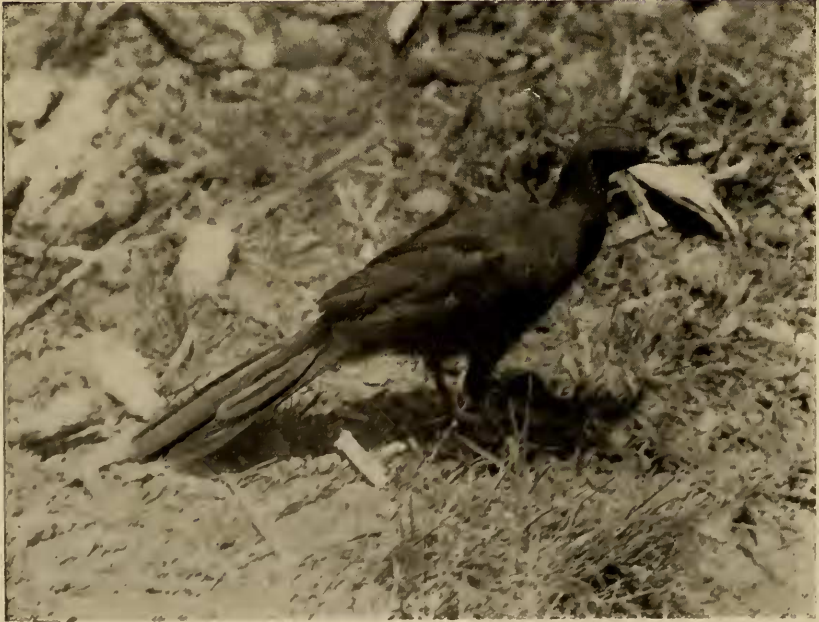


FIG. 23. Red-tailed Chacalaca.

The varied bird, reptilian and insect life of the South American continent becomes bewildering as soon as the mangroves are left behind. Among the birds, cassiques, hummingbirds, toucans and tanagers predominate; large tegus crawl along the water's edge, and myriads of lesser lizards swarm in the underbrush. The fish in the pools at La Brea are interesting from their varied forms; among others we observed the common *Hoplias malabaricus*, several species of *Aequidens* and *Callichthys*.

At this season Hymenoptera, especially ants and wasps, were more abundant than other insects, but heliconias, dragon flies, cicadas and large brush-legged Hemiptera were also common. Large banded Mollusks (*Ampullaria glauca* and *A. cormerarietis*) breed in the forest pools, and mosquitoes were almost absent. Tarantulas, scorpions and centipedes, while abundant, were never troublesome. A single specimen of *Peripatus* was found associated with scorpions in rotten wood.

PART IV.—LIST OF BIRDS OBSERVED IN NORTHEASTERN VENEZUELA

From March 25th to April 14th, 1908.

ORDER TINAMIFORMES.

Tinamus tao Temm. GREAT BLUE TINAMOU.

The conventional remark concerning this tinamou which one finds repeated in many volumes—in English, Spanish, Portuguese, German and Dutch,—as originally given in the British Museum Catalogue, Vol. XXVII, page 499, is as follows: "This large species is easily distinguished by the dark olive-slaty tinge of its plumage." In fact, little more seems to be known concerning the bird.

It is apparently of wide distribution, recent authorities differing on the limits of its range as follows:

Venezuela, Colombia, Amazonia, Peru (Sharpe's "Handlist," Vol. I, p. 8).

Matto Grosso, Borba, Para, Amazonia, Bolivia, Peru, Colombia, Guyana, Venezuela (von Ihering's "As Aves do Brazil," p. 4).

The first news we had of this bird was at the village of Guanoco, where some of the natives and Indians recognized a painting I showed them, calling it "*gallina del monte con los huavos azules*," which at once identified it.

We found that the tinamou inhabited dense jungle, especially on the slopes of rather steep hill-sides, and in such places

their high pitched, rolling trill would occasionally be heard. To catch sight of them was a difficult matter, and only twice did they give us an opportunity to use our glasses and gun. The dark cross bars or markings show distinctly on the dorsal plumage, which, in shadow, appears strongly bluish.

On April 12th, after hearing a bird call near at hand, we forced our way toward it into an open glade, a former clearing of some Indian, or made by the cutting of trees for the Pitch Lake Company.

A tinamou was seen to creep stealthily along close to the ground, keeping near a rotten log. As it crouched and sprang into the air in flight, we secured it, and found it was of this species. It proved to be a male bird, with the breast feathers much worn from incubating. Near where we first caught sight of the bird we found a nest with two eggs still warm from the heat of the parent's body. (Fig. 22.) It consisted merely of a slight hollow scratched in the ground near the end of the log, in a rather open patch of grass. One egg was clear, the other was about to hatch. They are of a medium shade of shining turquoise blue, the egg containing the embryo being about a shade darker than the other. The inner surface of the shell is pale, pearl-gray. In shape they are spheroidal, with almost equally rounded ends. The measurements are: the clear egg 56 x 48 mm., the fertile egg 58 x 48 mm. I can find but two references to the egg of *Tinamus tao*.

Thein. Fortpflanz. ges. Vog., p. 22. T. V. f. I. 1845.

H. von Ihering. Revista do Museu Paulista, IV, p. 297. 1900. (This is a reference to Nehrkorn; Katalog der Eiersammlung, Braunschweig, p. 247. 1899.)

Near the end of our stay we learned that a second nest containing a set of four eggs of this species had been found on April 3rd and the eggs placed under a hen. We could learn nothing of their subsequent fate.

(At least one other species of tinamou was heard calling, but could not be identified.)

ORDER GALLIFORMES.

Penelope argyrotis (Bonap.). RUFIOUS-TAILED GUAN.

A pair of these birds was seen near the Caño Colorado about sunset on March 30th. They were perched high up in a dead tree, looking like large blackish turkeys, the sunlight shining with a rich scarlet glow through their throat wattles. One was secured.

Ortalis ruficauda Jard. RED-TAILED CHACHALACA.

We saw two specimens of this bird which were voluntarily associating with some fowls in an Indian's clearing at Guanoco. They had become accustomed to the sight of the people, and came daily from the neighboring forest to feed with the hens. Fig. 23.

As throughout the southwest of the United States, Mexico and Central America, so here it was firmly believed that chachalacas occasionally cross with common fowls, the offspring making fine game-cocks. Also as elsewhere no specimens of such hybrids could be produced.

Three other chachalacas were seen at a distance and the wild nocturnal chorus of these birds was occasionally heard. The natives call them "*pavos del monte*," monte in this and other cases meaning, not mountain, but low forest.

ORDER COLUMBIFORMES.

Leptoptila verreauxi Bonap. RUSTY GROUND PIGEON.

This was the only member of the Columbiformes which came under our notice. On a mangrove branch overhanging the water of Caño Guanoco a pair had built their frail nest and were incubating two eggs. We discovered them on April 2nd.

ORDER OPISTHOCOMIFORMES.

Opisthocomus hoazin (Müll.). HOATZIN.

Common in small flocks on the Guarapiche River.

For the notes made on this species see ZOOLOGICA No. 2, pages 54 to 56.

ORDER RALLIFORMES.

Aramides axillaris Lawr. VENEZUELAN WOOD RAIL.

These handsome birds were occasionally seen on the mud islets in the mangrove swamp, especially at the mouth of the Rio Guarapiche. It was impossible to stalk them but if one sat quietly in the curiara, they would soon appear, walking swiftly and silently over the mud, jerking neck and tail in unison. The flesh was strong and fishy as the food consisted chiefly of small crabs. At night their sudden, unearthly cry would occasionally ring out close to the sloop, to be taken up and answered by birds farther and farther off until the notes died away in the distance. It was a high, long-drawn-out yelping, the rhythm of which was frequently broken by the notes of some neighboring bird.

ORDER PROCELLARIIFORMES.

Oceanites oceanicus (Kuhl.). WILSON PETREL.

A single individual was blown by the storm into the quiet waters of the Caño San Juan when we entered the mangroves on March 25th. It flew close to the sloop and alighted twice on the water.

ORDER LARIFORMES.

Phaëthusa magnirostris (Licht.). GREAT-BILLED TERN.

These terns, with their conspicuous bright yellow feet and bills, attracted our attention on March 25th at the entrance of the San Juan, where a dozen were flying slowly about or perching on the mangrove snags left exposed by the tides. Occasionally they rose upward and dived headlong after fish. We saw none higher up. The large ungainly-looking bill reminded one of the mandibles of their relation—the skimmer.

Rhynchops nigra cinerascens Spix. BLACK-TAILED SKIMMER.

A single bird, probably of this species, passed us March 25th, at the mouth of the San Juan, skimming as it flew.

Larus atricilla Linn. LAUGHING GULL.

A dead specimen of this bird was picked up on the water at the mouth of the San Juan. Two other gulls, apparently of the same species, were seen flying at a distance at the same place.

ORDER CHARADRIIFORMES.

Aegialitis semipalmatus (Bonap.). SEMIPALMATED PLOVER.

Aegialitis collaris (Vieill.). SOUTH AMERICAN COLLARED PLOVER.

Large flocks of plovers were wheeling about or running over the mud flats at the mouth of the San Juan where we anchored March 25th. They proved to be of these two species, *semipalmatus* being in much greater numbers. None were seen farther inland.

Numenius hudsonicus Lath. HUDSONIAN CURLEW.

The body of one of these birds in an advanced condition of decay was found on the muddy shore of the Caño San Juan, March 26th. The humerus had been broken and partly healed.

Helodromas solitarius (Wilson). SOLITARY SANDPIPER.

April 9th two of these birds were seen in a pool of water at the side of the narrow-gauge track leading from Guanoco to



FIG. 24. Sun-bittern.



FIG. 25. White-headed Chimachima Hawk and Moriche Palm.

La Brea. The following day a male was secured on the lake itself. It had been feeding on insects and spiders near the edge of the pools scattered over the pitch.

Tringoides macularia (Linn.). SPOTTED SANDPIPER.

We saw a number of these little friends on March 25th, at the very outer limit of the mangroves, the mouth of the Caño San Juan. On April 2nd we found them abundant along the Caño Guanoco and on the 9th a single one was seen near the railroad track, half way to La Brea.

Gallinago paraguaiae (Vieill.). SOUTH AMERICAN SNIPE.

A single male of this species was secured on the pitch lake, April 10th.

Jacana jacana (Linn.). SPUR-WINGED JACANA.

Common about the pools at La Brea. On April 10th we saw at least thirty, flying slowly about, cackling shrilly from time to time. Their beautiful colors were very conspicuous as they held their wings straight upward over their backs for some time after alighting. A number in the immature plumage were among them. One secured was in full breeding condition.

Oedicnemus bistriatus (Wagl.). DOUBLE-STRIPED STONE PLOVER.

One bird, apparently not in fully adult plumage, was seen at La Brea, April 10th.

ORDER GRUIFORMES.

Aramus scolopaceus (Gmel.). SOUTHERN LIMPKIN.

Three or four of these strange birds were seen along the banks of the Caños, none however as far down as the territory where the mangroves held sole sway. Their nocturnal cry was not heard during the trip.

Eurypyga helias (Pall.). SUN-BITTERN.

Sun-bitterns are fairly numerous throughout the central mangrove region, where a more terrestrial flora begins to appear. One was also seen at La Brea on April 9th. They are tame, unsuspecting birds but extremely difficult to observe owing to their coloring. The indefinite patterns of their plumage seem to assimilate with any combination of light and shade.

The sun-bittern creeps quietly from the underbrush and steps slowly and daintily over the mud, stopping now and then

to lunge at a fly or other insect—its body swinging from side to side, in the characteristic manner of this bird. When the bird stands head on, its slim head and neck vanish from view, and if one's eyes are removed for an instant it is very difficult to rediscover the bird. Its flight is buoyant and heron-like.

The only sound we heard from these wild birds was a sweet but penetrating, high double-note, uttered frequently in early morning. Both notes are equal, each lasting about a second, and the final one is a half-tone higher, thus closely resembling the call-note of *Tapera*. The pitch is the second G and G# above middle C on the piano.

Sun-bitterns were great pets with the Indians, and we saw several which were perfectly tame, enjoying full liberty, one of which chose to perch most of the time on the shoulder of its mistress. We secured this bird before we left, and it is still living in perfect health in the New York Zoological Park.

Psophia crepitans Linn. COMMON TRUMPETER.

We heard the curious, muffled, rhythmic, rumblings—one certainly cannot call them trumpetings—of these birds several times before we caught sight of them. This was an excellent view of three individuals which slowly crossed the track ahead of us and, flying heavily across a ten-foot pool of water, stalked into the impenetrable underbrush beyond. One individual, before it disappeared, leaped upward and seized a berry or insect from a leaf overhead.

ORDER ARDEIFORMES.

Eudocimus ruber (Linn.). SCARLET IBIS.

These birds were seen only on the Caño San Juan, from the very mouth up to a distance of several miles inland. Not a bird was visible at high tide but with the uncovering of the mud-flats, the scarlet ibises began to appear singly and in small flocks. They were, without doubt, the most abundant bird in all the mangrove region into which we penetrated. In every flock of thirty or forty, some six or eight would be birds in the brown plumage of immaturity.

On the evening of March 26th a flock of not less than five hundred birds swung back and forth across the caño ahead of us, in a series of graceful evolutions before rising and drifting out of sight over the dark green mangroves, like a great cloud of living flame. They were quite wary and when feeding did not allow one to approach within gun-shot before flying. The flocks

however, often passed within a few yards of the sloop. These mangrove jungles, impenetrable to man, form a vast natural game preserve in which these birds may roost and nest safe from all except their natural enemies.

I obtained a bird from an Indian who had broken its wing and had cared for it until it recovered. It was in full adult plumage, scarlet from tip of beak to tip of toe. Shortly after placing it in the flying cage in the New York Zoological Park it moulted all the feathers on the head and neck, and a scattering through the scapulars, coverts and back. The new plumage, with the exception of the lesser coverts, came in pale salmon instead of the original brilliant scarlet, and at the present date the contrast is striking. The salmon tint of the new plumage is exactly that of another individual which has been in captivity since February, 1905, and has now (December, 1909) passed through five annual moults. So in the case of my ibis, the loss of color was not gradual but sudden, and its cause was certainly not due to absence of sunlight, heat or moisture. I am not yet prepared to say, however, that change in food alone was the cause.

Ardea cocoi Linn. COCOI HERON.

Several of these wary birds were observed three miles up the Caño San Juan.

Florida caerulea (Linn.). LITTLE BLUE HERON.

After the second mile up the Caño San Juan and throughout the whole length of the Caño Guanoco, these herons were abundant, adults predominating. Later, at La Brea, we saw small flocks of birds mostly in the immature white plumage.

Leucophoyx candidissima (Gmel.). SNOWY EGRET.

Snowy egrets were seen in numbers on March 25th at the mouth of the Caño San Juan, and at La Brea six or eight of these birds were associating with young blue herons. Many were also seen along the Caño Guanoco. They were second in numbers, being excelled only by scarlet ibises.

Nyctanassa violacea (Linn.). YELLOW-CROWNED NIGHT HERON.

A single bird of this species in fully adult plumage, was perched at the mangrove's edge waiting for the tide to go down, as our sloop passed in at the mouth of the Caño San Juan on March 25th, and a few others were seen farther up stream.

Agamia agami (Gmel.). AGAMI HERON.

Several were at the mouth of the Caño San Juan, fishing in the shallows at the edge of the mud flats. Not seen again.

Canchroma cochlearia Linn. BOAT-BILLED HERON.

Several of these curious looking birds flew up as our sloop passed them on the Caño San Juan.

Butorides virescens (Linn.). LITTLE GREEN HERON.

Very abundant along the Rio Guarapiche, flying up at every turn, and exceedingly tame. On April 10th we saw several of these familiar little herons, at La Brea, but not until we secured two and carefully identified them, could we be certain that they were the same "fly-up-the-creeks" which haunt our northern mill-ponds.

ORDER ANSERIFORMES.

Cairina moschata (Linn.). MUSCOVY DUCK.

Two pairs of this splendid duck were seen at the mouth of the Caño San Juan on March 25th and no day passed during our stay among the mangroves when we did not see several pairs. They would waddle slowly out from the darkness of the inner swamp, their black plumage the very hue of the blue-black mud, and the scarlet caruncles about the eyes glowing in the sunlight. When the birds were flushed, the white wing-speculums flashed out brilliantly. They seemed to sift the mud for organic material and we saw them running awkwardly after the small mangrove crabs. We saw none away from the salt or brackish caños. They seemed to fly about more and to feed more freely toward night-fall.

Dendrocygna viduata (Linn.). WHITE-FACED TREE-DUCK.

We saw these birds only twice, on the upper Rio Guanoco, beyond tide water. I procured a tame pair which were in a bamboo fenced yard near an Indian's hut, associating with cats, dogs and chickens. These were said to have been caught when young a few miles farther inland.

ORDER PELECANIFORMES.

Phalacrocorax vigua (Vieill.). SOUTH AMERICAN CORMORANT.

A flock of nine birds flew across our bow in the Caño San Juan about a mile from the gulf. On March 30th we flushed a single cormorant from the Rio Guarapiche near Caño Colorado.

Anhinga anhinga Linn. SNAKE-BIRD.

On April 2nd as our sloop was drifting slowly up the Caño Guanoco, a male snake-bird rose from the water and flew heavily to a protruding snag, from which it watched us as we passed.

Fregata aquila (Linn.). FRIGATE BIRD.*Pelecanus fuscus* Linn. BROWN PELICAN.

Numbers of these two species were seen in the first few miles of mangroves, along the Caño San Juan.

ORDER CATHARTIDIFORMES.

Catharistes urubu urubu (Vieill.). (?) BLACK VULTURE.

This was by far the more abundant of the vultures in this region. A flock was always perched on the roof of the village slaughter shed at Guanoco. As no specimens were secured I cannot be perfectly certain of the sub-species.

Cathartes perniger (Sharpe). (?) VENEZUELAN TURKEY VULTURE.

Turkey Vultures were abundant, although less so than the above species. We observed them on the very edge of the mangroves at the mouth of the San Juan. My only note concerning these is "common soaring as in Virginia, but they seem smaller than those in the north." I collected no specimens but from this observation and with the aid of Mr. Cherrie's criticism I judged them to be *perniger*.

ORDER ACCIPITRIFORMES.

Ibycter ater (Vieill.). BLACK CARRION HAWK.

We saw these birds first on April 10th at La Brea where three were flying about over the expanse of weed-grown pitch, calling hoarsely with raven-like croaks to each other. The natives know them as the ko-kai birds from their cry. One of the three, the tamest, was in a dull brownish, immature plumage, and although full grown, I saw him called and fed by one of the parents.

They were striking birds, the adults wholly black except for a wide band of white across the base of the tail, the head mostly bare of feathers and of an orange color, giving the bird the gen-

eral appearance of a turkey buzzard while the size of a crow. They were feeding on armored fish (*Callichthys*) which now and then leaped out of the small pools of water and died on the pitch. In the stomach of the male I secured was a skeleton of one of these fish.

Although vulturine in appearance and habit, these carrion hawks have not lost the power of grasping and can carry food to a branch where they hold it down and pick it apart at leisure. These birds are extremely tame and one sat unconcerned while a puffing little engine pulling a load of pitch passed within twenty feet. I heard these birds calling from the depths of the mangroves while drifting up the Caño Guanoco.

Heterospizias meridionalis (Lath.). RED-WINGED HAWK.

One of these small hawks hunted systematically over a small area of forest and an Indian's clearing near the railroad track. We saw it first on April 7th.

Rupornis magnirostris (Gmel.). LARGE-BILLED HAWK.

A single individual was often seen at La Brea, very tame, coming within fifty feet and circling about uttering a harsh scream.

Busarellus nigricollis (Lath.). CREAM-HEADED HAWK.

From time to time as we drifted through the caños we saw these birds perched on the mangroves. They were on the lookout for crabs, which they seemed expert in snatching from the mangrove roots. The lower surface of the hind toe is covered with long, sharp-pointed horny spicules which must be of great assistance in seizing either crustaceans or fish. On April 10th one of these birds was seen near La Brea.

They are beautiful hawks, almost as large as a red-tailed *Buteo*, with the head and neck creamy buff and the body bright rufous. From a long distance their pale heads and red plumage stand out sharply against the dark green of the mangroves.

Urubitinga urubitinga (Gmel.). SOUTH AMERICAN BLACK HAWK.

One of these birds perched for several hours in the top of a tall dead tree near our house at Guanoco, and early next morning it was in the same place, soon shooting swiftly away toward the high land to the west.

Leucopternis albicollis (Lath.). WHITE-HEADED CHIMACHIMA
HAWK.

On April 9th I first saw one of these splendid birds perched in a dead tree at La Brea and every day after that I saw it frequently. It was absurdly tame, allowing us to go under the tree on which it sat, and not troubling to sail slowly to a neighboring palm until one threw a stick at it. It appeared to be watching the ground closely but we could not discover its prey (Fig. 25).

The head, neck, underparts and tail were pure white, so it was altogether a very beautiful and conspicuous bird, and most interesting because of its utter lack of fear.

Elanoides forficatus (Linn.). SWALLOW-TAILED KITE.

These graceful birds were not uncommon, swooping and soaring above the caños. On April 1st three kites swooped past my canoe on the Rio Guarapiche, repeatedly dashing down to the surface and scooping up a beakful of water before they rose again. I secured a male, and found it had just feasted upon several small species of beetles. On April 11th a pair of these birds passed slowly over the lake of La Brea.

ORDER STRIGIFORMES.

Glaucidium brasilianum phalaenoides (Daud.). SOUTHERN
PYGMY OWL.

When we stepped out of the door of our house at Guanoco on April 4th, the first morning of our stay, we found one of these little owls perched in a pomerosa tree before us, with a half-eaten female euphonia tanager in its talons. When excited and nervous the tail is raised high, wren-like, and is then jerked at intervals, up, down and sideways.

I secured this bird, which proved to be a male in full breeding condition. In the stomach was the head of the unfortunate tanager, together with two small beetles.

We found the pygmy owls very numerous and both diurnal and nocturnal in their habits. In the glaring heat of mid-day and late at night their voices were equally in evidence. Their call is a series of ten to sixty whistled *coos*, given about three to the second in a monotone of the second E above middle C, or thereabouts. Whip-poor-will-like, the bird sometimes becomes excited, and hurries its utterances until they almost run together.

Their voice is very ventriloquial and it is often difficult to locate the little gray or red author; for both phases of plumage are found, although the gray birds are far more numerous.

We flushed one red bird which flew by closely pursued, and actually pecked, by two kiskadees, a blue tanager and a hummingbird. When it alighted it "froze" in characteristic owl fashion and its pursuers disappeared.

Acting on this hint we utilized the whistled *coo-coo-coo-coo* to draw birds out of impenetrable thickets, and found it invaluable. Sometimes a dozen species of small birds would exhibit their hatred and fear of this diminutive raptor by appearing at once with angry cries.

(We saw no other species of owl, but several times we heard a screech owl and occasionally the deep hooting of a *Ciccaba* or *Bubo* would come from the depths of the high land jungle.)

ORDER PSITTACIFORMES.

Ara ararauna (Linn.). BLUE-AND-YELLOW MACAW.

On March 29th at La Ceiba on the Rio Guarapiche we saw a single pair of these birds, perched in the top of a dead stub. They watched us on our sloop for a half hour, swinging upside down and shrieking their curiosity, their brilliant under parts glowing in the sunlight. At last they flew away close together, westward, high above the mangroves.

Ara macao (Linn.). RED-AND-BLUE MACAW.

This was first seen March 27th on the Rio Guarapiche below Caño Colorado, and one or two pairs of these birds were seen or heard almost every day on the Caño Guanoco and along the railroad tracks near La Brea.

Ara macavuana (Gmel.). RED-BELLIED MACAW.

While in the Rio Guarapiche, some Indians brought two young macaws to the sloop. They could not fly, and had apparently just been taken from the nest. The Indians would give no information concerning them, except that they had been obtained a short distance away, near the river. They were clad in dull brown-black feathers, and not until they reached New York did they acquire the adult plumage, proving to be of this species.

Conurus aeruginosus (Linn.). BROWN-THROATED PARRAKEET.

On April 2nd we saw large flocks of these parrakeets, and in the high land jungle, and at La Brea we heard their shrill, rau-



FIG. 26. Nesting Stub of Yellow-fronted Amazon Parrot on Pitch Lake.



FIG. 27. Amazon Parrot at the Entrance to Her Nest.



FIG. 28. Nearer View of Amazon Parrot.

cous cries or saw them almost every day, usually in small flocks of four to twelve.

(Short-tailed parakeets were seen on several occasions, but were not secured or identified.)

Amazona ochrocephala (Gmel.). YELLOW-FRONTED AMAZON PARROT.

Two birds of this species had their nest in an old dead palm stub about one hundred yards out on the expanse of pitch at La Brea (Fig. 26). We discovered it by accident, the old bird climbing to the entrance and peering out at us as we pushed through the tangle of weeds near by.

We returned later and secured three photographs of the parrot at the entrance of the nest, before she flew screaming to join her mate at the edge of the neighboring jungle.

The dead palm stub was seven feet in height, with the entrance of the nest five feet from the ground. This entrance was almost a vertical rectangle, measuring two and seven-tenths by five and a half inches. The whole interior of the stub was hollow, and the nest itself was three and a half feet below the entrance, the lower part having been partly hollowed out, or at least smoothed off, by the parrots. The nest consisted of nothing but a soft bed of chips, and it was perfectly clean and sweet-smelling. At the level of the nest the hollow measured ten inches in diameter, and the nest chips were six inches above the pitch outside.

There were two eggs and one young bird just out of the shell (Fig. 30). This nestling was thickly covered with white down. When I cut through the base of the palm stub and let in the warm sunlight, the young bird instantly showed symptoms of distress, uttering a low, raucous cry, like the subdued mewing call of a catbird.

The eggs are dull white, in shape like diminutive hen's eggs, and measure 39 x 30 and 38 x 30 mm. respectively. The egg from which the young bird had hatched was broken into two unequal parts, through a circle slightly nearer the blunt end.

Amazona inornata (Salvad.). GRAY-HEADED AMAZON PARROT.

A pair of these birds were often seen near our house at Guanoco, fearlessly climbing about the pomerosa trees while we watched them, and one was secured on April 9th half way to La Brea at the side of the railroad track.

Pionus menstruus (Linn.). BLUE-HEADED PARROT.

These birds were fairly common in small flocks along the Rio Guarapiche. We did not see them elsewhere.

Pionites melanocephala (Linn.). BLACK-HEADED CAIQUE PARROT.

These conspicuous green, yellow, black and cream-colored parrots were abundant among the trees along the Caño Guanoco where they were feeding and flying about in loose, noisy flocks. An Indian brought one to the sloop in adult plumage. Small flocks roosted occasionally in a tall dead tree near our house. The call note is loud but not unmusical.

ORDER CORACIIFORMES.

Ceryle torquata (Linn.). GREAT RUFIOUS KINGFISHER.

Not uncommon throughout this region. The first flew past our sloop as we were entering the mangroves on March 25th at the mouth of the Caño San Juan, and the last was perched on a stub at La Brea, sitting quietly through a heavy downpour of rain.

Ceryle americana (Gmel.). RED-BELLIED KINGFISHER.

Three were seen at Caño Guanoco, and a pair near the railroad track at La Brea. They were also fairly common on the upper Guarapiche near Caño Colorado.

Ceryle superciliosa (Linn.). PYGMY KINGFISHER.

This least of all kingfishers is no larger than many hummingbirds. One mile up the San Juan we saw the first, and they were almost always in sight after that, on the Guarapiche and Guanoco Caños. A male which I secured shows six or eight large white feathers on the center of the lower breast, distinctly marked off from the under tail-coverts which are white as usual. As these little birds flew they flashed out brilliantly in the sunlight,—chestnut and green alternately.

Nyctibius jamaicensis (Gmel.). POOR-ME-ONE.

We saw this bird only once in Venezuela but we often heard its unmistakable cry in the evenings in the high-land woods about two miles up the railroad track between Guanoco and La Brea. It was only after we returned to Trinidad that we had an opportunity of studying the bird at first hand, on Mr. Carr's cocoa estate at Caparo.

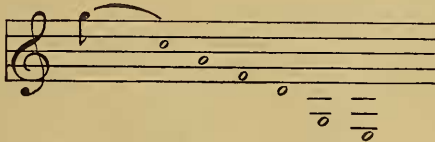


FIG. 29. Amazon Parrot About to Take Flight.



FIG. 30. Nest and Young of Yellow-fronted Amazon Parrot.

The notes I made at that place are of sufficient interest for insertion here. The call of this bird is of a most weird character,—a long, drawn out descending moan or diminuendo wail, ceasing abruptly and followed by three, four or sometimes five short notes uttered at regular intervals and successively lower and deeper in tone. The natives are not to be blamed for regarding this bird with deep superstition. Mr. Carr has written the call in musical notation thus:—



The birds began calling at about nine o'clock in the evening and would answer each other, and come nearer when one imitated the note. We drew one bird close to the house, and thereby nearly frightened an old creole man to death. It perched on exposed stubs and fence-posts, sitting stiffly erect with its tail pressed close to the stub, merging perfectly with the dead wood; seeming like a gray, mottled continuation of the stub itself.* When I flashed a strong electric light toward it, the eyes glowed like great orange globes of dull fire—the red-dish-yellow choroidal vessels being brilliantly reflected. It was such a remarkable sight—these two great orbs glowing and

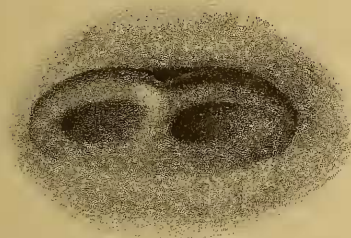


FIG. 31. Top View.

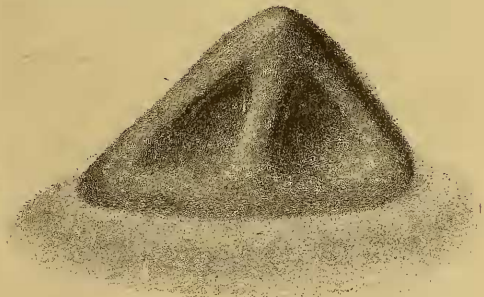


FIG. 32. Side View.

winking from out of the darkness,—that Mrs. Beebe and Mr. Carr who were with me were astonished. If one of the creoles had been present he would have fallen down and worshipped the

*For an illustration and description of this bird see Brewster and Chapman in *The Auk*, xii, pp. 208-211.

bird then and there! The bird ruffled its feathers and called twice before flying away.

I secured a male in full breeding condition, and found its stomach crammed with large horned scarab beetles. The pupil of this bird is enormous, in fact the iris is only just visible as a narrow, pale orange ring. The fundus oculi on close examination, show as pale pink, slightly clouded with gray. The pecten is of relatively medium size, and very simple. In shape it is a compressed cone with a flaring base; the rim and a bar down the center thickened and slightly lighter in color. The white disk of the optic nerve is wide, and visible all the way around the pecten, while the lamina cribrosa, represented by many minute dots, are confined to the inner portion of the disks. Little or no trace of radiating nerve fibers are visible, these being apparently entirely free from the neurilemma, and thus transparent. (Figs. 31 and 32.)

Nyctidromus albicollis (Gmel.). WHITE-NECKED PARAUQUE.

Not uncommon at Guanoco until April 9th, after which none were seen or heard. The call may be best represented by the syllables *wha-ah-ee-o!* This is usually uttered but once, and is then answered from a distance by another bird.

Claudia squamata (Cass.). FORK-TAILED PALM SWIFT.

A flock of these birds could always be seen hawking in the clearing about our house in Guanoco. A smaller number were seen at La Brea. They are very swallow-like in appearance and flight.

(Hummingbirds abundant and at least eight species were observed, but only four specimens were collected.)

Thalurania furcata fissilis Berl. and Hart. VENEZUELAN BLUE-COLLARED HUMMINGBIRD.

Common about the house at Guanoco. Several times this species flew into our room, and was unable to find its way out again. These birds would snatch small spiders from their webs in the corners of the walls. They were breeding at this season.

Eucephala caerulea (Vieill.). THE LESSER SAPPHIRE.

Heliothrix auritus (Gmel.). BLACK-EARED HUMMINGBIRD.

Both species were common among the flowering shrubs and trees along the railroad track near Guanoco. These birds and many other species haunted the heliconia water cups, in which

each morning there was always an abundance of drowned insects. The first species was in breeding condition.

Glaucis hirsuta (Gmel.). RUFIOUS-BREASTED HUMMINGBIRD.

Common all along the upper Caño where they frequented a small white orchid which was blossoming in great abundance.

ORDER TROGONIFORMES.

Trogon viridis Linn. GREATER YELLOW-BELLIED TROGON.

These beautiful birds were common on the upper Guara-piche, often flying out near the water, then upward to some fruit or cluster of berries. Their soft cooing notes were a constant accompaniment to the other river sounds. A female which I secured had the stomach filled with small berries.

At Guanoco a pair of these trogons lived in the dense woods just behind our house. They were very tame, and one could approach within ten feet of them.

Trogon violaceus Gmel. LESSER YELLOW-BELLIED TROGON.

Less common than the larger species, but found in close association with them.

(The Indians recognized a picture of a red-bellied species of trogon and said it was found in this region, probably *Trogon collaris*, but we saw nothing of it.)

ORDER CUCULIFORMES.

Coccyges melanocoryphus Vieill. SOUTHERN BLACK-BILLED CUCKOO.

A pair of these birds was seen several times at La Brea. They were tame, and occasionally came close to one as they searched the lower thickets for insects. A third bird was secured and found to be in breeding condition.

Piaya cayana guianensis (Cab. and Heine). VENEZUELAN RUFIOUS CUCKOO.

On April 3rd two of these birds appeared at the edge of the railroad track about one hundred yards from our house at Guanoco, calling to each other excitedly, and hinting in other ways that they had a nest not far away.

Piaya rutila (Illig.). LESSER RUFIOUS CUCKOO.

Five of these little birds were gathered in a clump of brush at the edge of the pitch lake on April 9th.

Tapera naevia (Linn.). FOUR-WINGED CUCKOO.

This interesting cuckoo was observed only in the vicinity of the clearings made by the Indians, occasionally along the railroad track and twice at La Brea.

It attracted attention both on account of its notes and actions. The more common utterance is a penetrating double-toned whistle, recalling a note of the sun-bittern. When giving it the bird usually perches on the topmost twig of some dead tree. The tone is loud and clear, in a minor key, and the second note is slightly *higher* than the first (not *lower* as Chapman says, writing of this bird in Trinidad).*

The second call or song consists of six to ten similar notes, uttered in measured sequence, slowly ascending on a minor scale; then the bird slips down three or four tones and carries the scale higher than before, both phrases running smoothly into a single song.

If one attempts to imitate this latter song the bird pays no attention, but by hiding and giving even a single whistled note near the tone of the first described double utterance, the bird is thrown at once into great excitement. Perhaps in this case it is a male exhibiting anger at the suspected presence of a rival. It answers at once, sometimes adding a third higher half-tone to its call. With looping flight it swoops toward one and so accurately does it gauge the single note it has heard that it will often alight directly overhead or at least in the nearest dead tree. Here it shows its excitement by raising the crest feathers, flirting the tail and often the entire body from side to side, and—strangest of all—by repeatedly shooting the dark alulas or thumb feathers out across the pure white breast, the wings being kept motionless all the while and pressed close to the side. Until it discovers the fraud practiced upon it or until its excitement dies away, it utters the piercing double-note, perhaps once every three or five seconds. One may stand up and frighten the bird away with a shout, yet a whistle will bring it back at once. The movement of the alulas is observable at other times when the bird is calm, preening its feathers or hopping about the branches of a tree. I never saw one of these birds alight among foliage.

Crotophaga major Gmel. GREATER ANI.

These curious birds were common in small, straggling flocks all along the Rio Guarapiche and Caño Guanoco, sailing across

*Bull. Amer. Mus. Nat. His. VI, p. 64.

from one bank to the other or flopping helplessly among the branches. The natives have aptly named them *hervidores*—the boilers—from the bubbling quality of their notes, uttered when gathered together in a garrulous, sprawling crowd. In Guanoco, they were among the tamest birds about the house, and a flock was always attendant upon the grazing cows, feeding on the insects which flew up in the path of these animals.

ORDER SCANSORES.

Ramphastos haematorhynchus (Berl. and Hart.). (?) VEN-
EZUELAN RED-BILLED TOUCAN.

The toucans we saw and collected were either of this species or *Ramphastos erythrohynchus*. I considered them as the former, but brought no skins back with me. Several were seen at Guanoco and a pair at La Brea perching in a dead tree near the lake. Their call was a loud, harsh *Kiok! Kiok!*

Ramphastos culminatus Gould. LESSER WHITE-THROATED
TOUCAN.

Four or five were seen along the Rio Guarapiche and two secured.

Pteroglossus aracari atricollis (Müll.). BLACK-NECKED
ARACARI.

On March 30th a pair of these birds alighted in a dead tree almost over the sloop, as we lay anchored at La Ceiba. On the 8th of April a second pair was seen at five o'clock in a tall tree at one side of our house at Guanoco. I secured the female which had the stomach filled with leaves, seeds and small insects.

ORDER PICIFORMES.

Galbula ruficauda Cuv. VENEZUELA RUFIOUS-TAILED JACAMAR.

We first saw these birds along the Rio Guarapiche above the village of Caño Colorado. They were in pairs and seemed to remain within a radius of some fifty yards. On March 31st as we were paddling slowly upstream a sudden downpour of rain drove us to the shelter of a dense tree overhanging a perpendicular bank of bluish clay. While holding the dugout close to the bank a jacamar suddenly dived between us and disappeared into a hole in the bank within arm's reach. We watched quietly and soon its mate followed. A few minutes later a good-sized anaconda wound slowly out of a hole beneath the water

line. A second entrance apparently well worn by the passage of the serpent's body was higher up, above the water, and only three feet beneath the nest of the jacamar. Elsewhere the bank was pitted with the smaller holes of crabs.

These jacamars had three types of notes; the call-note was a series of sharp peeps like a young chick, while the alarm note was a single soft cluck. The song was a field sparrow's tempo set to the peeps of a newly hatched chick; slow at first and accelerating until the series ended in a rolling blurr of sound—all, however, in a monotone, never a trill.

They are indefatigable fly-catchers, sitting motionless on a branch until an insect passes when they launch out after it like a flash, much more kingfisher than flycatcher like. This pair of birds was feeding altogether on small dragon-flies and other Odonata, swallowing wings and all.

The nest in this instance was a slightly descending cylindrical tunnel $1\frac{3}{4}$ inches in diameter, showing no external hint of its occupancy. It differed from the numerous fiddler crab holes all about only in being slightly larger. The tunnel was ten inches long and ended in a chamber as big as one's fist. The nesting material consisted only of a thin layer of the harder parts of the small insects—elytra, legs and chitinized body segments, among which were a number of active fly larvae. There were four, glossy white eggs, almost round, and remarkably uniform in size. Three measure 22 x 18 mm. and the fourth 23 x 18 mm. The embryos were about three-quarters grown.

On April 9th we saw a pair of rufous-tailed jacamars perched in a bush near La Brea, singing.

Bucco bicinctus (Gould). DOUBLE-BANDED PUFF-BIRD.

A pair of these birds were perched close together high up in a tree near La Brea on April 9th. As they sat all hunched up they resembled diminutive laughing kingfishers. No note was heard but now and then one sallied forth after an insect and returned to its perch. The male which I secured had a number of small beetles in its stomach.

A peculiar characteristic of this bird is the bifurcated tip of the upper mandible, between the points of which the upturned point of the lower mandible is inserted. Thus the front view of the bird shows three sharp, curved points. This specimen shows three complete bands of black across the breast instead of two each posterior one successively narrower.



FIG. 33. Yellow Woodpecker.



FIG. 34. Northern Palm Tanager.

Melanerpes terricolor (Berl.). EARTH-COLORED WOODPECKER.

These birds were not uncommon along the middle and upper Guarapiche, calling noisily from the trees on the banks. I secured a female at La Ceiba on March 29th. A male of this species with a large part of the crown and nape scarlet, spent much of his time outside of our window at Guanoco, feeding on the pith of guavas. The bird would cling to one of the fruits and excavate it until he ate through his support, when both the fruit and the bird would fall, the latter freeing himself, and with a graceful curve swooping upward to a branch. Here he would clean his bill and feet and soon commence on another fruit. If frightened the bird would remain away but a few minutes, so fond was he of this delicacy.

Dendrobates kirki (Mahl.). RED-AND-GREEN WOODPECKER.

Several of these were observed and two secured. They were identical with individuals observed in Trinidad, where the bird is shot on sight owing to its devastation among the cocoa pods. The reiterated call is shrill and ventriloquil.

Celeus elegans (Müll.). YELLOW-CRESTED COCOA WOODPECKER.

On March 30th six of these birds flew into a tree over the sloop in the early morning. Later we found them common at Guanoco and along the railroad track. A female which I shot had been eating the seeds of a species of orchid.

In Trinidad a bounty is offered for these birds as they are very destructive on the cocoa plantations, boring into the unripe pods and drinking the milk.

Celeus jumana (Spix.). BROWN-CRESTED COCOA WOODPECKER.

Several were seen and one secured on the Caño Guanoco on April 2nd. Apparently much rarer than the former species, as no others were seen.

Crocomorphus semicinnamomeus (Reichenb.). YELLOW WOODPECKER.

We first saw these striking, bright yellow birds in the Caño Guanoco. When flying in the sun with the characteristic looping woodpecker flight, they were very conspicuous, shining brightly against the dark foliage. But when clinging to a trunk they merged perfectly with the patches of lichen and sunlight. At Guanoco they were not uncommon, drumming loudly on the trees near the house. They were not wary and I succeeded in getting an excellent photograph of one. These woodpeckers ex-

hibited considerable variation, some birds, doubtless immature, showing a much greater amount of brown on the plumage than others.

A female which I secured had several hundred very small ants in its stomach.

Campephilus melanoleucus (Gmel.). GREAT RED-CRESTED
WOODPECKER.

Occasionally seen in pairs in the dense woods west of Guanoco. A male which I secured on April 13th had been feeding upon small iridescent green bees, which he had been chiseling out from a half-dead tree trunk.

Ceophloeus lineatus (Linn.). GREAT IVORY-BILLED WOODPECKER.

A pair of these splendid woodpeckers seemed perfectly at home among the Indian huts at Caño Colorado, calling from the nearest trees and flying to and fro overhead.

Another pair had a nest in a hole high up in the trunk of an unclimbable tree near our house at Guanoco. Their calling and drumming was one of the dominant sounds in early morning.

ORDER PASSERIFORMES.

FAMILY FORMICARIIDAE.

Thamnophilus doliatus doliatus (Linn.). CHECKED ANTBIRD.

This interesting ant-thrush was not uncommon along the railroad track, appearing usually in pairs and uttering a loud, drawn-out call. The sexes, as is often the case in this family of birds, are radically different in color, the male black, thickly barred and spotted with white, while the female is of a general rufous color. These ant-thrushes feed on insects which they find on the ground, often scratching for them among fallen leaves.

Thamnophilus canadensis trinitatis (Ridgw.). TRINIDAD
BLACK-HEADED ANTBIRD.

The black-headed males and the rufous-capped females of this species of ant-thrush were fairly common in the undergrowth about the border of the lake of La Brea. They seldom left the shelter of the low bushes, except to descend to the ground now and then for an insect. All I secured were feeding on a small, green species of hemipter. A motion characteristic of these birds was to flirt the tail sharply and raise the crest, uttering at the same time a simple chirp.

Dysithamnus affinis andrei (Hellm.). ANDRE'S ANTBIRD.

This Trinidad form has not been taken in Venezuela before. A pair was seen at La Brea on April 10th and the male secured. Like other ant-birds they kept among the underbrush, feeding on small insects of various kinds.

(Several other species of ant-thrushes were seen but not identified. Among them were two rufous colored species, one with a black and white face and the other with black underparts.)

FAMILY *DENDROCOLAPTIDAE*.*Synallaxis cinnamomea* (Gmel.). CINNAMON SPINE-TAIL.

At La Brea these birds were common in pairs wherever there were low bushes on the lake. Although they have the stiff, spiny, creeper-like tail of the typical woodhewers, yet they seem to have completely lost the climbing habit. They remind one constantly of marsh wrens in their jerky motions; flirting the tail and clinging to the upright stems of sedges, while in color they recall the female bearded tit.

The song is a series of squeaking or rattling chirps. The acquisition of such radically new habits without a corresponding change in structure is very interesting. A male which I secured had been feeding on small insects.

Dendroornis susurans susurans (Jard.). COCOA WOODHEWER.

Fairly common along the Caño Guanoco and the railroad track near La Brea. Days before we identified the bird we heard its sweet dropping song of eight or ten notes recalling some of the utterances of a canyon wren. Even when the song came from the tree directly overhead, it was almost impossible to locate the mottled brown singer while it clung motionless to the bark.

These birds were always to be found in the van of the armies of hunting ants, feeding both on the frightened winged insects aroused by their enemy, and on the ants themselves. The woodhewers fly to the ground, snatch their prey, and swing up to a tree trunk, where they brace themselves creeper-like, and if the insect is too large to swallow entire, they wedge it into a crevice of bark and eat it piecemeal. At other times they find their food in true creeper fashion, under pieces of bark and lichens and among the roots of aerial orchids and other plants. They were in breeding condition.

Dendroornis obsoleta notata (Eyt.). LESSER STRIPED
WOODHEWER.

We found this bird common along the upper Rio Guara-piche, creeping as often along the under as along the upper side of horizontal branches. Those secured were feeding solely on arboreal ants of several species.

(At least four other climbing species of Dendrocolaptidae were observed but not identified.)

FAMILY COTINGIDAE.

Tityra erythrogenys (Selby). VENEZUELA RED-EARED TITYRA.

A pair of these birds were perched in a dead tree at La Brea on April 11th, the female with rich rufous ear-coverts. They uttered no note and we did not see the species again.

FAMILY PIPRIDAE.

Pipra erythrocephala (Linn.). GOLDEN-HEADED MANAKIN.

These exquisite little birds were not uncommon in the high woods north of Guanoco, where they were to be found in pairs. They were in full breeding condition and were feeding on insects alone. Although so conspicuous when in flight or in the hand, yet when perching among the lights and shadows of the forest, they became practically invisible, either the black body merging with the shadow, or the orange-yellow head with the sunshine; in either event the visible colored part bore no resemblance in shape to a bird.

Manacus manacus manacus (Linn.). WHITE-BREADED
MANAKIN.

These little birds were found under the same conditions as the golden-headed manakins, six or eight being sometimes seen during a morning's walk through the jungle. Their presence was made known at a great distance by the loud whirring sound produced by the wings, each time the birds flew. Even if they only flitted to a branch a foot or two away, the four, narrow, outer primaries gave forth a sharp whirr. They were pugnacious and occasionally two males would fight fiercely. Their approach toward each other was by short flights, the birds puffing out the elongated feathers of the throat and holding their bodies in a peculiar upright position as they flew. Their food as far

as I observed them feeding and from the contents of the stomachs of several, consisted wholly of small insects. They were nesting at this season.

FAMILY TYRANNIDAE.

Fluvicola pica (Bodd.). WHITE-SHOULDERED GROUND
FLYCATCHER.

The habits of these dainty little black and white terrestrial flycatchers came as a surprise to our northern ideas of the members of the family Tyrannidae. They were wholly terrestrial and of the twenty or thirty observed, we never saw one perch in a shrub or bush. They were very common on the lake at La Brea, *running* swiftly over the black pitch against which their white-cap, shoulders and underparts stood out in sharp contrast. They were tame and confiding and if we sat still for a few moments, the birds would come fearlessly within eight or ten feet. Their occupation was the pursuit of small insects, which they secured by swift running spurts or short flights, uttering a sharp, chirping cry as they flew. While scurrying swiftly over pitch and fallen logs these flycatchers wagged their tails continually, like water-thrushes, and from time to time uttered low, soft chirps. The simile was heightened by their preference for water, and true to their generic name they seldom carried on their insect hunting more than a few yards away from some pool. They were nesting or about to nest.

Arundinicola leucocephala (Linn.). WHITE-HEADED MARSH
FLYCATCHER.

Closely associated with the above species was the white-headed flycatcher. The colors of the male were also black and white, but the pattern was more simple, the white being confined to the head, neck and a patch on each flank. In the males the upper mandible and the distal third of the lower, are black, the remaining portion of the under mandible being light yellow. They were in breeding condition.

There was no competition between these two pied, marsh-loving flycatchers, as they hunted in different strata. The white-headed birds kept altogether to the topmost twigs of low shrubs, from whence they now and then made quick sallies after passing insects in typical flycatcher fashion. A single sharp chirp was the only note I heard them utter. The females, distinguished by their gray upper parts, were more timid and hunted among the denser thickets.

Rhynchocyclus flaviventris flaviventris (Max.). YELLOW-GREEN BROAD-BILL FLYCATCHER.

Several of these flycatchers were seen at La Brea and one secured. Their mandibles snapped audibly when they closed upon some small insect prey but their general appearance and motions were of warblers rather than flycatchers.

Todirostrum cinereum cinereum (Linn.). GRAY TODY-FLYCATCHER.

Fairly common in the clearings about Guanoco and along the railroad track. One bird perched in a low tree was very tame and not alarmed at the closest inspection. It uttered a single, sharp call-note, and now and then dashed out after a passing insect which it seized with a loud snap of the bill. Within a period of ten minutes it repeated four times a simple, piping warbler-like song, sounding like *whit-o! whit-o! whit-o!* These birds were breeding at this season.

Todirostrum maculatum (Desm.). SPOTTED TODY-FLYCATCHER.

We saw several small flocks of this species on March 26th along the banks of the Caño San Juan about nine miles from its mouth. They were in family parties of three to five individuals, and were catching insects among the mangroves. Their call-note was a loud, sharp chirp, out of all proportion to so small a bird. They showed no fear of us and came within a few feet of the canoe.

This is the first time that *Todirostrum maculatum* has been recorded from the Orinoco region; British Guiana having been thought to be the northern limit of its range.

Colopteryx galeatus (Bodd.). HELMETED PYGMY FLYCATCHER.

On April 8th in the high woods back of Guanoco we first observed this tiny flycatcher. A male bird was perched about thirty feet up in a great tree, uttering a sharp, penetrating chirp at intervals, the sound being audible a long distance away. These birds seem to find a portion of their food in the calyces of flowers and the crevices of the bark as well as by pursuit on the wing. The Indians call them *copeton*. They were in breeding condition. Besides its extremely long, transverse crest, this pygmy flycatcher is characterized by the degenerate condition of the first three primaries of the wing, which are only two-thirds of the normal length of the other feathers. In its stomach were a number of small insects and one round seed.

Elaenia martinica flavogastra (Thun.). SOUTHERN YELLOW-BELLIED ELANIA.

On April 11th a pair of these flycatchers were preparing to nest in a tree at the edge of the pitch lake. They seldom left the vicinity of their nest site, except to descend to the low shrubby growth, from the topmost twigs of which they watched for passing insects, or occasionally to fly to the ground to snatch up some prey. Their call-note was a single hoarse cry. Their food consisted chiefly of small termites.

Myiozetetes cayanensis cayanensis (Linn.). CAYENNE FLY-CATCHER.

These birds were fairly common, nesting at intervals along the Rio Guarapiche above Caño Colorado. The nests were built out over the water. A typical one found on March 31st, was placed on the stem of a prickly palm, leaning outward from the bank. It was a rough bundle of moss and plant down, covered over, with the entrance in one side, and contained half-fledged young. One could touch the nest only with the greatest difficulty, owing to the thorns on the stem and fronds of the palm, and it was perfectly protected from any terrestrial enemy.

Pitangus sulphuratus trinitatis Hellm. TRINIDAD KISKADEE FLYCATCHER.

These birds were nesting and exceedingly tame in the clearing about the Indian houses at Caño Colorado and also at Guanoco and for a mile along the track toward La Brea. Their loud-voiced, harsh cries awoke us every morning during our stay at Guanoco.

Myiodynastes maculatus maculatus (Müll.). STREAKED FLYCATCHER.

Streaked flycatchers were not uncommon about Guanoco and at the edge of the forest along the railroad track toward La Brea. Their call-note was a hoarse, croaking cry, and when alarmed they gave utterance to loud screaming notes. When approached quietly they showed little fear, often keeping their perch until one was within eight or ten feet. Ants, grasshoppers and small fleshy fruits composed the food of those which I examined.

There is such a remarkable external difference between two mated birds which I secured that it seems worth while to put it on record. Examination of a series of skins shows, however, that this variation is probably individual and not sexual.

I secured this pair of birds, male and female, of whose sex I am certain. They were mated and preparing to nest and were in full breeding condition, but are quite unlike in color and measurements. These differences tabulated, are as follows:

	♂ No. 1144.	♀ No. 1145.
Color of rectrices	chiefly black.	chiefly rufous.
Width of black marking on outer right rectrice, 10 mm. above tip of feather	8.5 mm.	4 mm.
Yellowish tinge on under parts	much stronger.	faint.
Color of crown patch	rich golden yellow.	pale lemon yellow.
Length of wing	112 mm.	109 mm.
Length of culmen	25 mm.	23 mm.
Width of bill at nostrils	11.5 mm.	13 mm.

It will thus be noticed that the male bird, in the color of its rectrices, partakes strongly of the character of *Myiodynastes solitarius*. The bills in this pair of birds differ as much as if they were two distinct species, the male's being long and narrow, that of the female short and broad.

Megarynchus pitangua pitangua (Linn.). GREAT-BILLED
KISKADEE TYRANT.

Several seen near Caño Colorado. One secured had been feeding upon berries.

Tyrannus melancholicus satrapa (Cab.). LESSER WHITE-
THROATED KINGBIRD.

A pair of these flycatchers were seen at the lake of La Brea on April 10th and later several others were observed along the line of the railroad and in the clearing about the huts of the Indians. A loud, strident cry was the only utterance heard. Small flies and beetles formed the principal part of the food.

These kingbirds were just beginning to build when we left. One nest site was in a tree in front of our house at Guanoco, both birds bringing material and arranging it in the crotch of the branch.

FAMILY HIRUNDINIDAE.

Progne chalybea chalybea (Gmel.). GRAY-BREASTED MARTIN.

A pair of these birds alighted on the mast of our sloop at the mouth of the Rio Guarapiche.

Tachycineta albiventer (Bodd.). WHITE-RUMPED TREE SWALLOW.

These beautiful birds were common everywhere flying over the water, from the mouth of the Caño San Juan to the pools scattered over the pitch at La Brea. They were tame and occasionally alighted on the sloop's mast or bowsprit.

(Two other species of martins or swallows were seen but not identified.)

FAMILY TROGLODYTIDAE.

Troglodytes musculus clarus Berl. and Hart. VENEZUELAN HOUSE WREN.

A pair of these wrens had a nest at our very door-step at Guanoco in the hole of a tree some twenty feet from the ground, and on April 4th both parents were carrying small spiders to their young. The song is less buoyant and elaborate than that of our northern house wren.

On April 12th a wren was seen and heard in full song at the Guanoco pitch wharf.

FAMILY MIMIDAE.

Donacobius atricapillus (Linn.). BLACK-CAPPED MOCKING-THRUSH.

A pair of these handsome, active birds was nesting or preparing to nest in a clump of dense undergrowth at the edge of the pitch lake. Their song was very loud and was uttered from the topmost twig of some low bush. It was a simple reiteration of the syllables *chew! chew! chew! chew!* for thirty or forty times, uttered rapidly but at regular intervals.

Several birds were seen in thickets along the railroad track near Guanoco and a female which I secured on April 11th had been feeding on small hymenoptera, and was in breeding condition. In no bird of this species which came under our observation was there any trace of the white superciliary streak characterizing *Donacobius albovittatus*.

Several times I was struck by the general superficial resemblance between this bird and the cuckoo, *Coccyzus melanocoryphus*. When seen at a distance, the general color scheme and the white-tipped rectrices made a second look necessary to differentiate the two.

FAMILY TURDIDAE.

Planesticus gymnophthalmus (Cab.). BARE-EYED ROBIN.

We observed several of these birds at Guanoco and heard their song. This closely resembles the song of our northern robin with now and then a liquid phrase like that of the wood thrush and an occasional sharp, metallic note.

Planesticus phaeopygus (Cab.). WHITE-THROATED ROBIN.

One pair and an immature bird were seen in a clearing near Guanoco. A sharp, robin-like alarm note was the only utterance heard. Small beetles formed the chief food of this species.

FAMILY VIREONIDAE.

Vireosylva chivi agilis (Licht.). NORTHERN ACTIVE VIREO.

These birds preferred the higher branches of the dense forest near Guanoco. In such places their song, a brief sweet warble, would often be heard. Those secured were feeding on small hymenoptera.

Pachysylvia aurantiifrons saturata Hellm. VENEZUELAN
PACHYSYLVIA.

Not uncommon in the underbrush near clearings. The song was a sweet vireo-like warble. In appearance and actions these birds are very warbler-like. They catch small insects on the wing and also search for them in the crevices of bark. They were fearless, and in their excitement when pursuing insects would come within a few feet.

FAMILY MNIOTILTIDAE.

Seiurus noveboracensis noveboracensis (Gmel.). NORTHERN
WATER-THRUSH.

Every day which we spent at the pitch lake, we saw several of these familiar birds walking and tipping along the edges of the pools.

Geothlypis aequinoctialis (Gmel.). VENEZUELAN YELLOW-
THROAT.

These handsome warblers, so much larger than our northern yellow-throats, would occasionally appear for a moment at the edge of the marshy thickets along the railroad track near La Brea. In action they resembled their northern relatives, but the song was less jerky, softer and more drawn out.

Setophaga ruticilla (Linn.). AMERICAN REDSTART.

A male in full plumage was seen among the mangroves at the mouth of the Rio Guarapiche on March 28th, and two other males near Guanoco feeding on the small winged insects which flew up before an army of hunting ants.

Basileuterus auricapillus olivaceus Chapm. TRINIDAD
WARBLER.

A pair of these birds was seen in the underbrush near Guanoco. The male, which was secured, was in breeding condition and had been feeding on small, green cut-worms. They seemed slow in their movements, searching the under side of leaves for insects, and uttered no sound.

FAMILY FRINGILLIDAE.

Sporophila minuta minuta (Linn.). PYGMY SEEDEATER.

A flock of fifty spent much of their time in the grassy clearing in front of our house at Guanoco, roosting at night in an isolated bush in a field. Small flocks would fly up before the pitch trains all the way to the lake. The males with their bright chestnut under parts were far out-numbered by the females. They were extremely tame and were feeding altogether on very small weed seeds. Their call-note was a sharp chirp, besides which individuals of both sexes would occasionally mount to the top of a bush and utter a musical, twittering song.

Sporophila gutturalis (Licht.). YELLOW-BELLIED SEEDEATER.

This species was found in company with the flocks of *Sporophila minuta minuta*, but in much fewer numbers. No song was heard, but the call-note was similar to that of the more abundant species.

FAMILY COEREBIDAE.

Cyanerpes cyaneus (Linn.). YELLOW-WINGED HONEY CREEPER.

Only two individuals of this species, both males, were seen. The one secured had been feeding on small insects, and was in breeding condition. The birds were in rather tall trees near the clearing at Guanoco.

Cyanerpes caeruleus caeruleus (Linn.). BLUE HONEY CREEPER.

On April 6th, a mile up the railroad from Guanoco, a female of this species dashed past us in a bit of marshy palm forest.

I secured it and found it had been feeding on the small seeds of an orchid. It was nesting or about to nest.

Dacnis cayana cayana (Linn.). TURQUOISE HONEY CREEPER.

We found a pair of these birds on April 8th at the edge of the high woods back of our house at Guanoco. They had been feeding on two kinds of seeds, one yellow and the others round and black.

Dacnis bicolor (Vieill.). TWO-COLORED HONEY CREEPER.

Two loose flocks of these birds were observed on March 26th, some in company with *Todirostrum maculatum*. They were fly-catching among the mangroves along the Caño San Juan, about nine miles from its mouth. A female had been feeding on small insects.

Coereba luteola (Cab.). VENEZUELAN BANANAQUIT.

On March 30th a flock of five of these birds spent a half hour searching for insects in the tree which overhung our sloop at La Ceiba on the Rio Guarapiche.

FAMILY TANGARIDAE.

Euphonia chlorotica (Linn.). PURPLE-THROATED EUPHONIA.

Several were observed along the Rio Guarapiche and one which flew on board was secured. It had been feeding on small berries.

Euphonia melanura Scf. BLACK-TAILED EUPHONIA.

A pair had a nest in a dense patch of undergrowth at the edge of the forest, back of our house at Guanoco. A female euphonia, half eaten by a pygmy owl, corresponded, as well as it was possible to tell, to this species.

Calospiza mexicana vieilloti (Scf.). VARIEGATED CALLISTE.

A flock of five of these beautiful birds was seen on April 7th near a clearing two miles up the railroad track from Guanoco. They were fly-catching and although as a rule they kept well to the tops of the trees, yet when pursuing some active moth or other insect they occasionally dashed down to within a few feet of our faces. Their call was a sharp twittering note. A male which I secured had been feeding altogether on small insects.

Tangara cana Swains. BLUE-SHOULDERED TANAGER.

These birds were common at Guanoco, both about the house and at the edge of the forest along the track. A few were seen along the Guarapiche.

Tangara palmarum melanoptera ScL. NORTHERN PALM TANAGER.

On April 5th three were seen in a dead tree back of the house at Guanoco. These birds were tame and often came to the very door-step, searching for insects. At five o'clock in the afternoon of the same day a flock of about seventy-five went to roost for the night in a dense foliaged vine climbing up a tall dead tree in the center of the village. We found that this was their regular custom every night. They called to one another in sharp lisping tones, sounding like *swaa-swee!*

Ramphocelus jacapa magnirostris (Lafr.). NORTHERN SILVER-BEAKED TANAGER.

These tanagers were nesting and carrying grubs to their young near our house at Guanoco early in April. One secured, had been feeding on small insects. Two pairs were also nesting near La Brea.

Tachyphonus luctuosus Lafr. et D'Orb. WHITE-SHOULDERED TANAGER.

Common in small flocks all along the Rio Guarapiche, keeping well up in the tops of the trees. They continually flirted their wings, showing the white shoulders and under coverts. The call was sweet and modulated like the call-note of a canary. A male had its stomach filled with small termite workers.

Tachyphonus rufus (Bodd.). WHITE-LINED TANAGER.

A pair of these birds was seen in the forest undergrowth near Guanoco on April 4th when they were nesting.

Phoenicothera rubra rubra (Vieill.). CARDINAL ANT-TANAGER.

A pair of these birds were carrying grasses near La Brea on April 9th. A third bird was secured and had been feeding on small termites.

Schistochalmys atra (Gmel.). BLACK-FACED GRAY TANAGER.

Three of these birds, all in adult plumage, were always to be found in a certain patch of dense scrub at the edge of the

pitch lake. A male secured on April 9th was in breeding condition and had been feeding on small seeds.

The same locality was inhabited by several male black-headed ant-thrushes, *Thamnophilus canadensis trinitatis*, and at a distance there was a striking resemblance between these two unrelated species, which were nesting in close proximity to each other.

FAMILY ICTERIDAE.

Ostinops decumanus (Pall.). GREAT BLACK CASSIQUE.

Fairly common and generally distributed through the deeper forest. Here and there along the Rio Guarapiche, their nests, fully three feet in length, could be seen, attached, in groups of three to eight, to the outermost twigs of giant, smooth-boled trees. These were wary birds and usually left their nests when we came within sight, and would not return for many minutes. Their notes were like deep, resonant cow-bells, ringing out clear and metallic and audible a long distance through the jungle.

The nearest nests of this species, a group of five, were about three hundred yards distant from our house at Guanoco. The black cassique seemed invariably to trust to the unclimbable character of its nesting tree to avoid its arboreal enemies. Their chief food consisted of small berries and insects, especially beetles.

Ostinops viridis (Müll.). GREEN CASSIQUE.

A pair of green cassiques were completing a three-foot nest on April 12th. It was placed like those of *Ostinops decumanus*, high up in an enormous isolated white-boled tree fifty yards in front of our Guanoco house. On the same branch was the remains of last year's nest. Their call-note resembled those of the black cassique, consisting of a series of four or five deep, metallic clinks.

Cacicus persicus (Linn.). YELLOW-BACKED CASSIQUE.

One of the dominant avian features in the fauna of this region was this interesting bird.

We first noticed them at Caño Colorado, where, in a tall isolated tree, standing in the center of the village clearing and directly in the rear of the custom house, were over one hundred and fifty nests. These were in all stages of construction, a few in the process of being built while some birds were carrying food to their young, and other nests were already deserted. Many scores of birds were in sight at once in the tree, while those re-